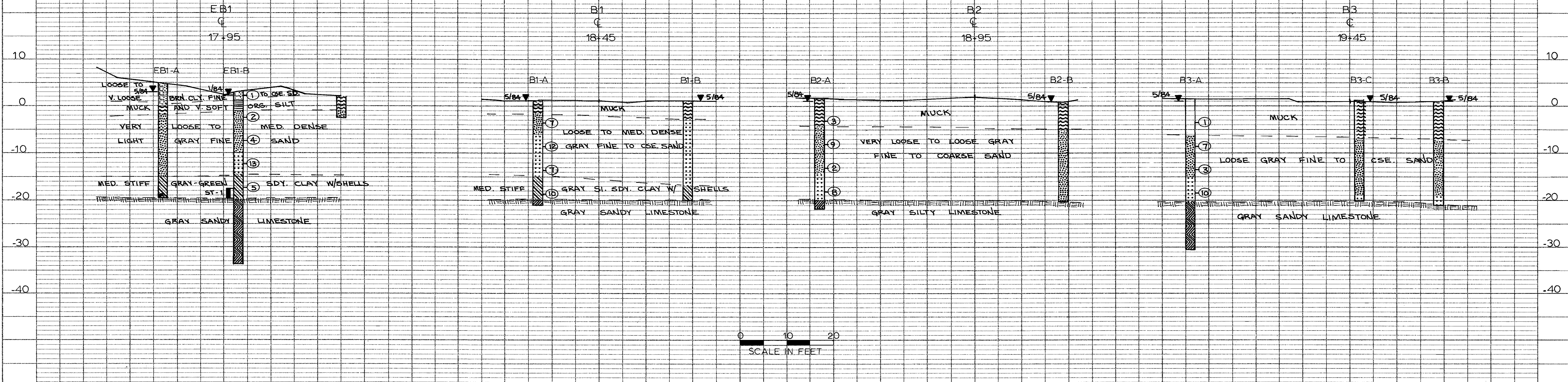
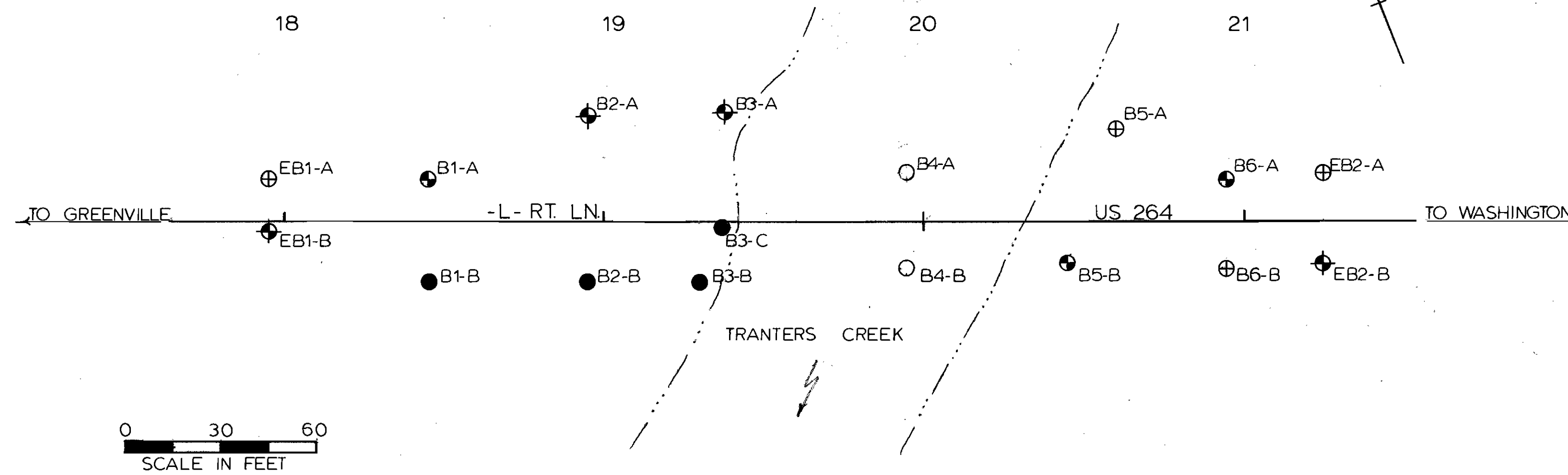


CROSS SECTIONS THROUGH BORINGS



TEST SITE PLAN



| GENERAL CLASS. | GRANULAR MATERIALS (≤ 35% PASSING #200) | | | | | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | | | | | ORGANIC MATERIALS | | |
|--------------------------------|---|-------|-----------|----------------------|-------|-------|------------|--|-------|-------|-------|---|----------|----------|----------------------|--|--|
| | A-1-a | A-1-b | A-3 | A-2-4 | A-2-5 | A-2-6 | A-2-7 | A-4 | A-5 | A-6 | A-7 | A-1, A-2 | A-4, A-5 | A-6, A-7 | | | |
| GROUP CLASS. | | | | | | | | | | | | | | | | | |
| SYMBOL | | | | | | | | | | | | | | | | | |
| % PASSING #10 | 50 MX | 50 MX | 51 MN | 35 MX | 35 MX | 35 MX | 35 MX | 36 MN | 36 MN | 38 MN | 36 MN | GRANULAR SOILS | | | SILT-CLAY SOILS | | |
| % PASSING #40 | 30 MX | 30 MX | 25 MX | 10 MX | 10 MX | 10 MX | 10 MX | 10 MX | 10 MX | 11 MN | 11 MN | GRANULAR SOILS | | | SILT-CLAY SOILS | | |
| LL | 0 MX | N.P. | 40 MX | 41 MN | 40 MX | 41 MN | 40 MX | 41 MN | 40 MX | 41 MN | 40 MX | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER | | | HIGHLY ORGANIC SOILS | | |
| GROUP INDEX | 0 | 0 | 0 | 4 MX | 8 MX | 12 MX | 16 MX | 20 MX | | | | | | | | | |
| USUAL TYPES OF MAJOR MATERIALS | STONE FRAGS. GRAVEL & SAND | | FINE SAND | SILTY OR CLAYEY SAND | | | SILTY SAND | CLAYEY SAND | | | | | | | | | |

| BOULDER | | COBBLE | | GRAVEL | | COARSE SAND | | FINE SAND | | SILT | | CLAY | |
|------------|----|--------|----|--------|----|-------------|----|-----------|----|------|----|------|----|
| GRAIN SIZE | MM | MM | MM | MM | MM | MM | MM | MM | MM | MM | MM | MM | MM |
| SIZE | IN | IN | IN | IN | IN | IN | IN | IN | IN | IN | IN | IN | IN |

| SOIL MOISTURE SCALE (ATTERBERG LIMITS) | | | FIELD MOISTURE DESCRIPTION | | GUIDE FOR FIELD MOISTURE DESCRIPTION | |
|--|------------------|-------------|---|--|--------------------------------------|--|
| LL | LIQUID LIMIT | -SATURATED- | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | | | |
| PL | PLASTIC LIMIT | -WET- (W) | SEMI-SOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | | | |
| OM | OPTIMUM MOISTURE | -MOIST- (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE | | | |
| SL | SHRINKAGE LIMIT | -DRY- | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | | | |

| CONSISTENCY OR DENSITY | | | |
|------------------------------|--|--|--|
| PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (SPT) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (QU) |
| GENERALLY GRANULAR MATERIAL | VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE | < 4 4 TO 10 10 TO 30 30 TO 50 > 50 | N/A |
| GENERALLY SILT-CLAY MATERIAL | VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD | < 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30 | < .25 .25 TO .5 .5 TO 1 1 TO 2 2 TO 4 > 4 |

| MISCELLANEOUS SYMBOLS AND ABBREVIATIONS | |
|---|--|
| [Symbol] | ROADWAY EMBANKMENT WITH SOIL DESCRIPTION |
| [Symbol] | ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS |
| [Symbol] | INFERRED SOIL BOUNDARIES |
| [Symbol] | STRIKE AND DIP OF BEDS |
| [Symbol] | APPARENT DIP (NORMAL TO ...) |
| [Symbol] | TEST BORING |
| [Symbol] | AUGER BORING |
| [Symbol] | CORE BORING |
| [Symbol] | PIEZOMETER INSTALLATION |
| [Symbol] | SLOPE INDICATOR INSTALLATION |
| [Symbol] | SPT N-COUNT |
| [Symbol] | BULK SAMPLE |
| [Symbol] | SPLIT SPOON SAMPLE |
| [Symbol] | " SHELBY TUBE SAMPLE |
| [Symbol] | WASH SAMPLE |
| [Symbol] | WASH BORING |
| [Symbol] | 1/2" BRIDGE ROD SOUNDING |
| GROUND WATER | |
| [Symbol] | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING (I.A.D.) SOON AFTER DRILLING (24 HRS.) |
| [Symbol] | STATIC WATER LEVEL (AFTER 24 HRS.) |
| [Symbol] | PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA |
| [Symbol] | SPRING OR SEEPAGE |

| ABBREVIATIONS | | | |
|---------------|--------------------------|------------|---------------------------|
| ALLUV. | ALLUVIUM | REF. RES. | REFER TO RESIDUAL |
| AR. | AUGER REFUSAL | S. | SATURATED |
| B.F.D. | BLOBS PER FOOT | SAT. | SATURATED |
| B.P.F. | BLOBS PER FOOT | S.D. | SAND |
| C. | COHESION | S.D.T. | SANDY |
| CALC. | CALCAREOUS | S.D.T. (S) | SANDY SILTY |
| CL. | CLAY | S.L. | SILT |
| CLY. | CLAYEY | S.L.T. | SILT SLIGHTLY |
| COB. | COBBLE | | |
| CSE. | COARSE | | |
| D.P.T. | DYNAMIC PENETRATION TEST | SPT | STANDARD PENETRATION TEST |
| E. | VOID RATIO | TS. | TOPSOIL |
| F. | FINE | VST | VANE SHEAR TEST |
| F.C.S. | FERRUGINOUS | W | WATER CONTENT |
| FRAC. | FRAGMENTED | W/W | WATER WEIGHT |
| FRAG(S). | FRAGMENT(S) | W/W | WATER WEIGHT |
| GR. | GRAVEL | W/W | WATER WEIGHT |
| G.S. | GRAVEL | W/W | WATER WEIGHT |
| GW | GROUND WATER | V. | VERY ESTIMATED |
| MC. | MICACIOUS | EST. | ESTIMATED |
| MIC. | MICACIOUS | | |
| MO. | MOTTLED | | |
| N. | NO SAMPLE TAKEN | | |
| NS | NO SAMPLE TAKEN | | |
| ORG. | ORGANIC | | |

| ROCK DESCRIPTION | | |
|--|----------|---|
| IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF "WEATHERED ROCK". FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS: | | |
| TERM | SYMBOLS | DESCRIPTION |
| HARD ROCK (HR) | [Symbol] | MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING SAMPLE. |
| WEATHERED ROCK (HWR) | [Symbol] | HARD WEATHERED ROCK |
| WEATHERED ROCK (SWR) | [Symbol] | SOFT WEATHERED ROCK |

¹ SPT REFUSAL (ASTM) ≤ 1 INCH OF PENETRATION PER 50 BLOWS.
² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:
 CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK QUALITY DESIGNATION (RQD) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK CORE NOMINAL SIZES: AX CORE (1 3/16"); BX CORE (1 5/8"); NX CORE (2 1/8"); NXWL CORE (1 5/16")

B.W. RR SPIKE IN BASE OF 10" SWEET GUM 58' RT. STA. 21+78 -L- ELEV. 11.23
 NOTE: THE SUBSURFACE INFORMATION SUPPLIED IN THIS REPORT IS BASED ON A PRELIMINARY BRIDGE REPORT. A REVIEW OF THE SUBSURFACE CONDITIONS IS NECESSARY IF SIGNIFICANT CHANGES ARE MADE IN THE DESIGN AND/OR LOCATION OF THE PROPOSED STRUCTURE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

STATE PROJECT NO. 8.1184801 R-216B F.A. NO. F-38-1(35)
 COUNTY BEAUFORT - PITT ROUTE US 264
 BRIDGE ON US 264, -L-
 OVER TRANTERS CREEK

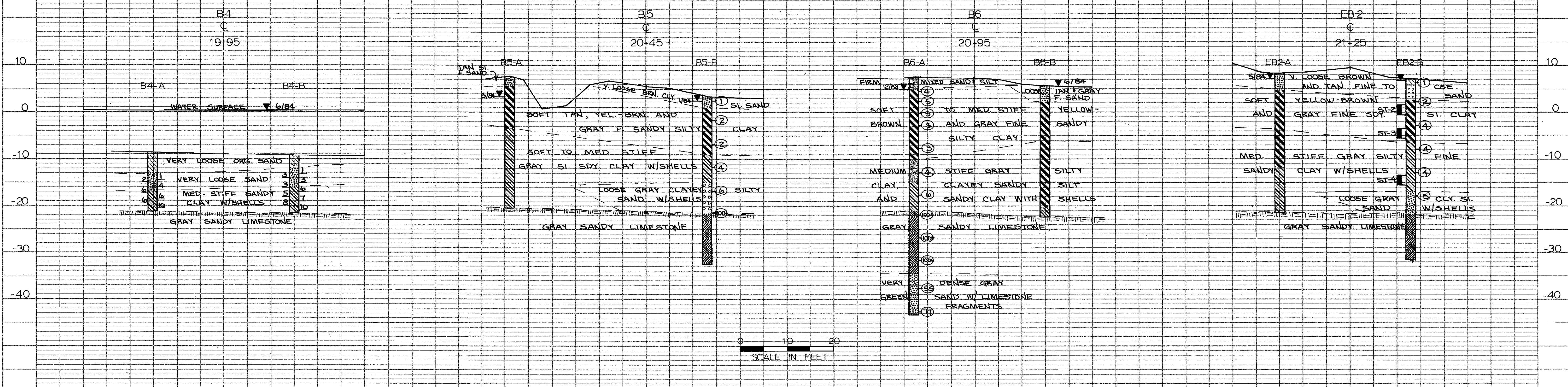
PROJECT GEOLOGIST E. A. WITORT DRAWN BY M. D. HARRELL
 CHECKED BY E. A. WITORT SUBMITTED BY G. L. BUNCH
 PERSONNEL: MWS RRA DATE SUBMITTED JULY 1984
TBD SSB
RLE

FORM: GEO-01 REVISED 4-77

PROJECT: 8.1184801 R-216B

FOUNDATION INVESTIGATION

CROSS SECTION THROUGH BORINGS



TEST SITE PLAN

SOIL LEGEND AND CLASSIFICATION

| GENERAL CLASS. | GRAULAR MATERIALS (<=35% PASSING #200) | | | | | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | | | | | ORGANIC MATERIALS | | |
|--------------------------------|--|-------|-----|-------|-------|-------|-------|--|-----|-----|-----|----------|----------|----------|-------------------|-----|------|
| | A-1-a | A-1-b | A-3 | A-2-4 | A-2-5 | A-2-6 | A-2-7 | A-4 | A-5 | A-6 | A-7 | A-1, A-2 | A-4, A-5 | A-6, A-7 | A-8 | A-9 | A-10 |
| GROUP CLASS. | [Symbol] | | | | | | | [Symbol] | | | | | | | [Symbol] | | |
| SYMBOL | [Symbol] | | | | | | | [Symbol] | | | | | | | [Symbol] | | |
| % PASSING | [Table] | | | | | | | [Table] | | | | | | | [Table] | | |
| USUAL TYPES OF MAJOR MATERIALS | [Table] | | | | | | | [Table] | | | | | | | [Table] | | |

TEXTURE OR GRAIN SIZE

| BOULDER | COBBLE | GRAVEL | COARSE SAND | MED. SAND | FINE SAND | SILT | CLAY |
|------------|--------|--------|-------------|-----------|-----------|--------|-------|
| GRAIN SIZE | 305 | 75 | 4.75 | 0.425 | 0.075 | 0.0075 | 0.002 |
| IN | 12" | 3" | 2 | 0.6 | 0.25 | 0.2 | 0.05 |

SOIL MOISTURE - CORRELATION OF TERMS

| SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION |
|--|----------------------------|---|
| LL - LIQUID LIMIT | -SATURATED- | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE |
| PL - PLASTIC LIMIT | -WET- (W) | SEMI-SOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE |
| OM - OPTIMUM MOISTURE | -MOIST- (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE |
| SL - SHRINKAGE LIMIT | -DRY- (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE |

CONSISTENCY OR DENSENESS

| PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (BPF) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (QU) (TONS/FT ²) |
|------------------------------|--|--|---|
| GENERALLY GRANULAR MATERIAL | VERY LOOSE, LOOSE, MEDIUM DENSE, DENSE, VERY DENSE | < 4, 4 TO 10, 10 TO 30, 30 TO 50, > 50 | N/A |
| GENERALLY SILT-CLAY MATERIAL | VERY SOFT, SOFT, MEDIUM STIFF, STIFF, VERY STIFF, HARD | < 2, 2 TO 4, 4 TO 8, 8 TO 15, 15 TO 30, > 30 | < .25, .25 TO .5, .5 TO 1, 1 TO 2, 2 TO 4, > 4 |

MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

| | | | |
|----------|--|----------|------------------------------|
| [Symbol] | ROADWAY EMBANKMENT WITH SOIL DESCRIPTION | [Symbol] | TEST BORING |
| [Symbol] | ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS | [Symbol] | AUGER BORING |
| [Symbol] | INFERRED SOIL BOUNDARIES | [Symbol] | CORE BORING |
| [Symbol] | STRIKE AND DIP OF BEDS | [Symbol] | PIEZOMETER INSTALLATION |
| [Symbol] | APPARENT DIP (NORMAL TO ...) | [Symbol] | SLOPE INDICATOR INSTALLATION |
| [Symbol] | | [Symbol] | SPT N-COUNT |

GROUND WATER

| | |
|----------|--|
| [Symbol] | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING (I.A.D.) |
| [Symbol] | STATIC WATER LEVEL (AFTER ... HRS.) |
| [Symbol] | PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA |
| [Symbol] | SPRING OR SEEPAGE |

ABBREVIATIONS

| | | | |
|----------|--------------------------|-----------|---------------------------|
| ALLUV. | ALLUVIUM | DEF. RES. | REFER TO RESIDUAL |
| AR | AUGER REFUSAL | SAT. | SATURATED |
| B.P.F. | BOULDER PER FOOT | SO. | SAND |
| C | COHESION | SOB. | SANDY SILT |
| CALC. | CALCAREOUS | SL. | SILT |
| CL. | CLAY | SLT. | SILT SLIGHTLY |
| CLY. | CLAYEY | | |
| COB. | COBBLE | | |
| CSE. | COARSE | | |
| D.P.T. | DYNAMIC PENETRATION TEST | SPT | STANDARD PENETRATION TEST |
| E | VOID RATIO | TS | TOPSOIL |
| F | FINE | VST | VANE SHEAR TEST |
| FOS. | FOSSELI FERROUS | W | WATER |
| FRAC. | FRAGMENTED | WV | WATER VOLUME |
| FRAG(S). | FRAGMENT(S) | WY | WATER YIELD |
| GR. | GRAVEL | Y | UNIT WEIGHT (WET) |
| GS | SPECIFIC GRAVITY | Z | UNIT DRY WEIGHT |
| GW | GROUND WATER | V. EST. | VERY ESTIMATED |
| MEG. | MEDIUM | | |
| MIC. | MICACEOUS | | |
| MOT. | MOTTLED | | |
| N | NITROGEN | | |
| NS | NO SAMPLE TAKEN | | |
| ORG. | ORGANIC | | |

ROCK DESCRIPTION

IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF "WEATHERED ROCK". FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:

| TERM | SYMBOLS | DESCRIPTION |
|----------------------|----------|---|
| HARD ROCK (HR) | [Symbol] | MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING SAMPLE. |
| WEATHERED ROCK (HWR) | [Symbol] | MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL ¹ . |
| WEATHERED ROCK (SWR) | [Symbol] | MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BPF BUT < SPT REFUSAL. |

¹ SPT REFUSAL (ASTM) ≤ 1 INCH OF PENETRATION PER 50 BLOWS.
² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:
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 ROCK QUALITY DESIGNATION (ROQ) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK CORE NOMINAL SIZES: AX CORE (1 3/16"); BX CORE (1 5/8"); NX CORE (2 1/8"); NXWL CORE (1 5/16")

B.W. _____ NOTE: THE SUBSURFACE INFORMATION SUPPLIED IN THIS REPORT IS BASED ON A PRELIMINARY BRIDGE REPORT. A REVIEW OF THE SUBSURFACE CONDITIONS IS NECESSARY IF SIGNIFICANT CHANGES ARE MADE IN THE DESIGN AND/OR LOCATION OF THE PROPOSED STRUCTURE.
 WISC: _____

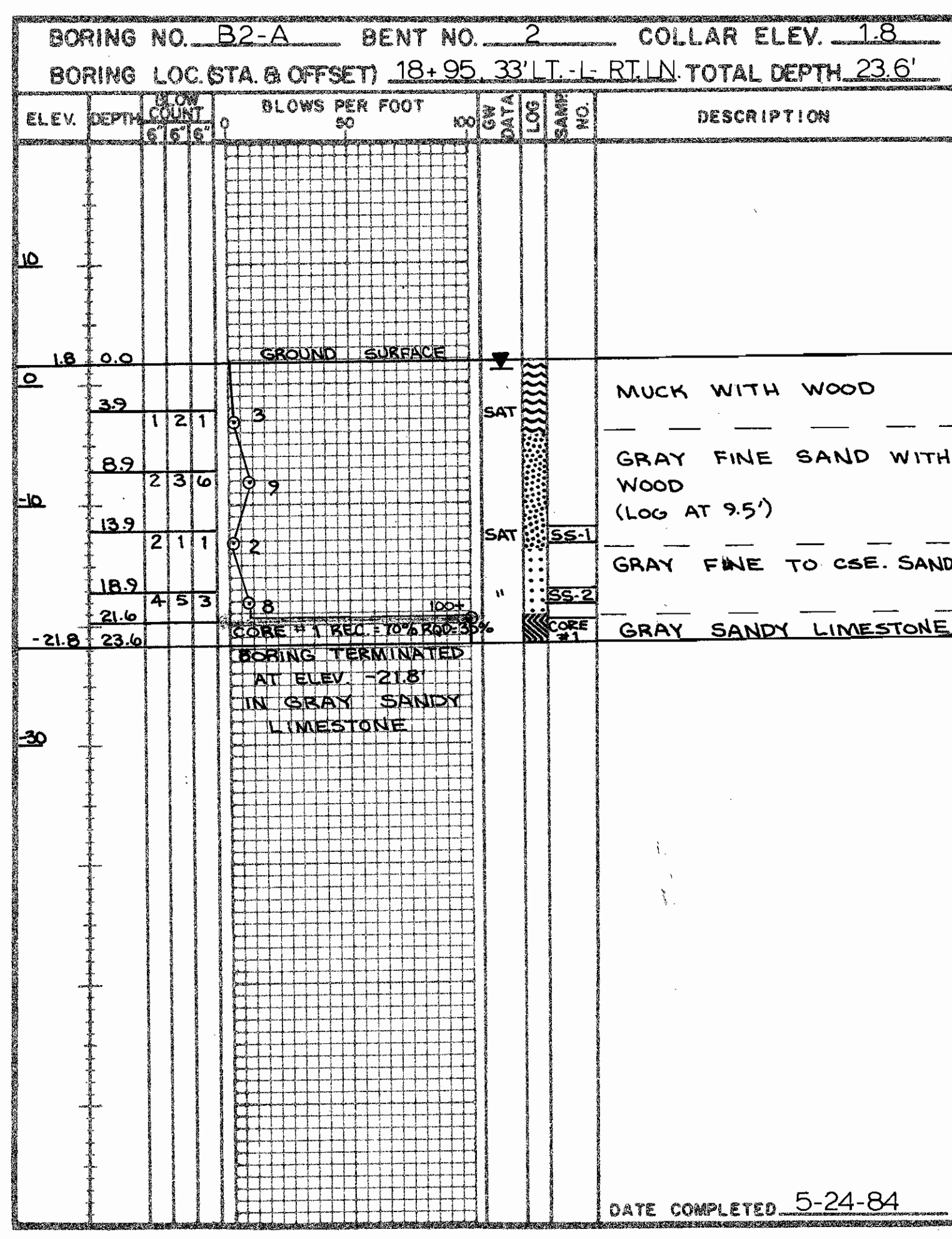
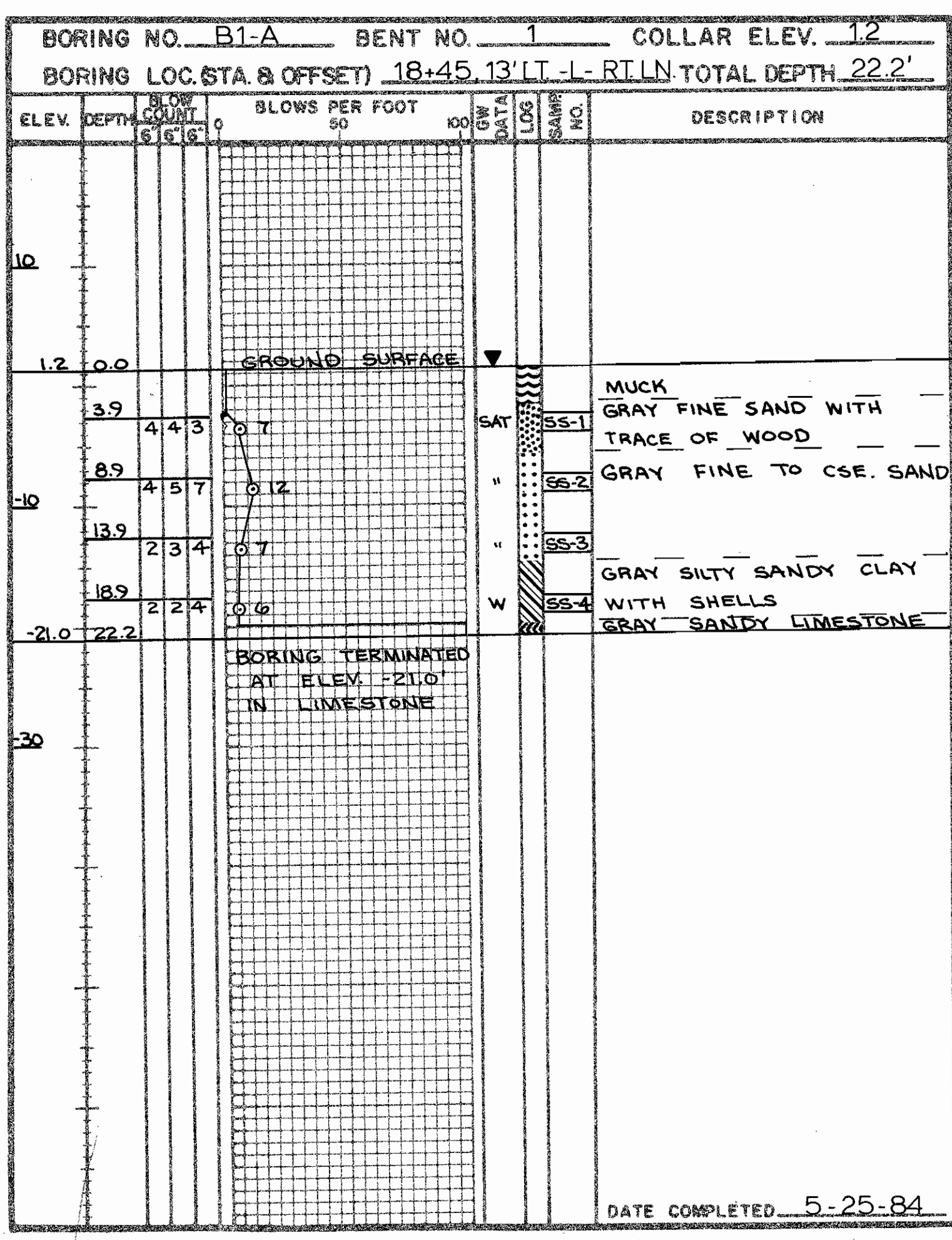
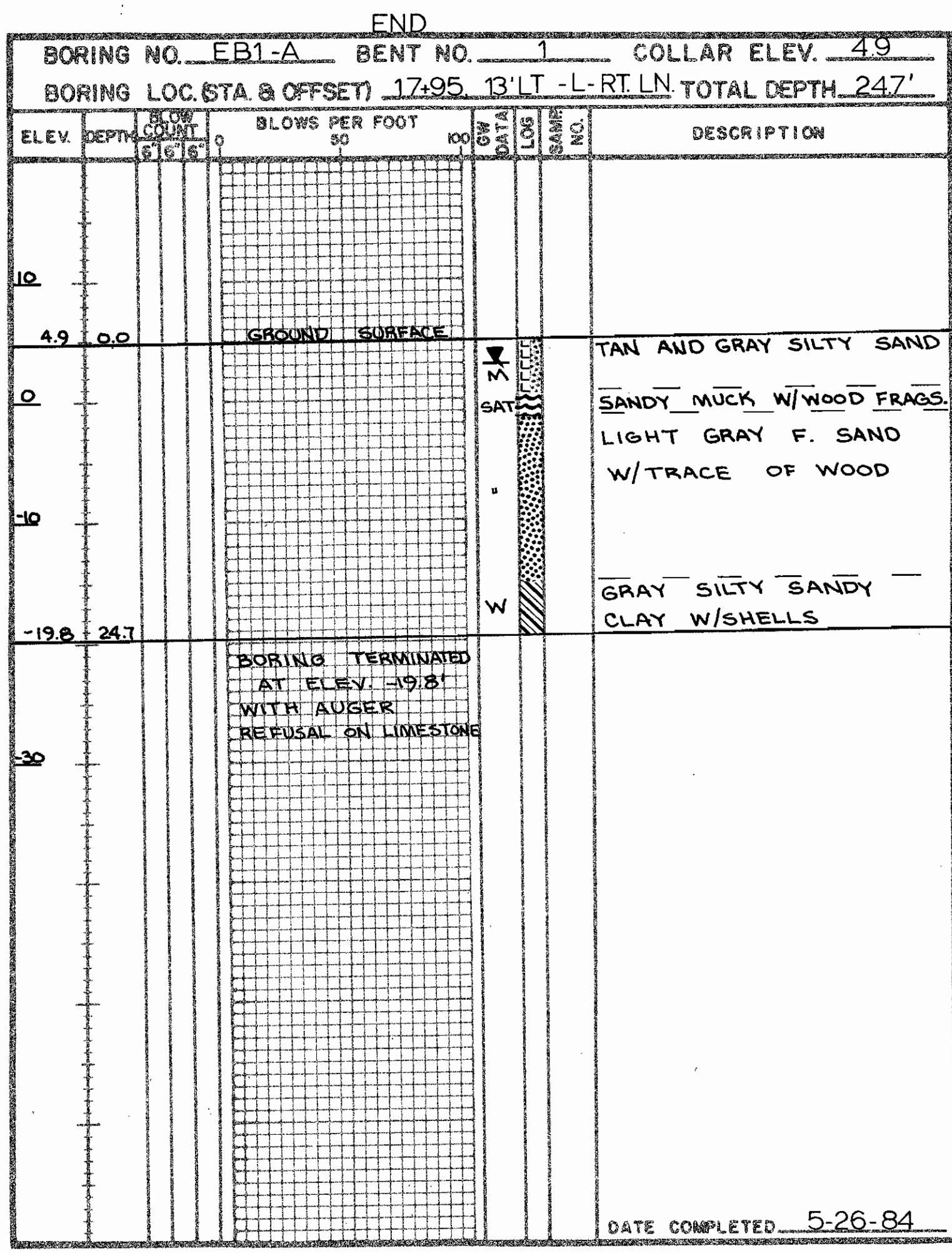
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

STATE PROJECT NO. 8.1184801 R-216B F. A. NO. F-38-1(35)
 COUNTY BEAUFORT - PITT ROUTE US 264
 BRIDGE ON US 264 - I-
 OVER TRANTERS CREEK

PROJECT GEOLOGIST E. A. WITORT DRAWN BY M. D. HARRELL
 CHECKED BY E. A. WITORT SUBMITTED BY G. L. BUNCH
 PERSONNEL _____ DATE SUBMITTED _____

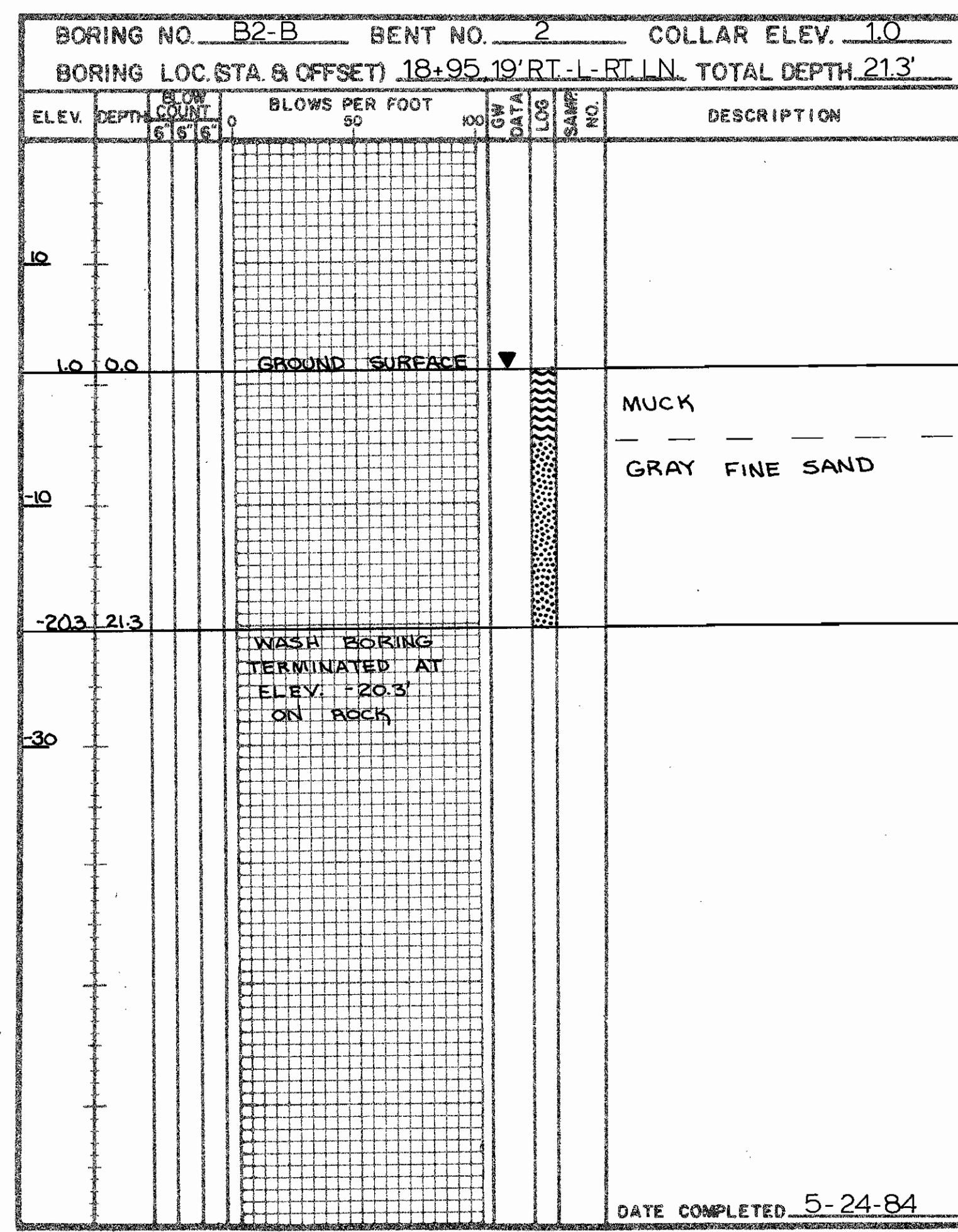
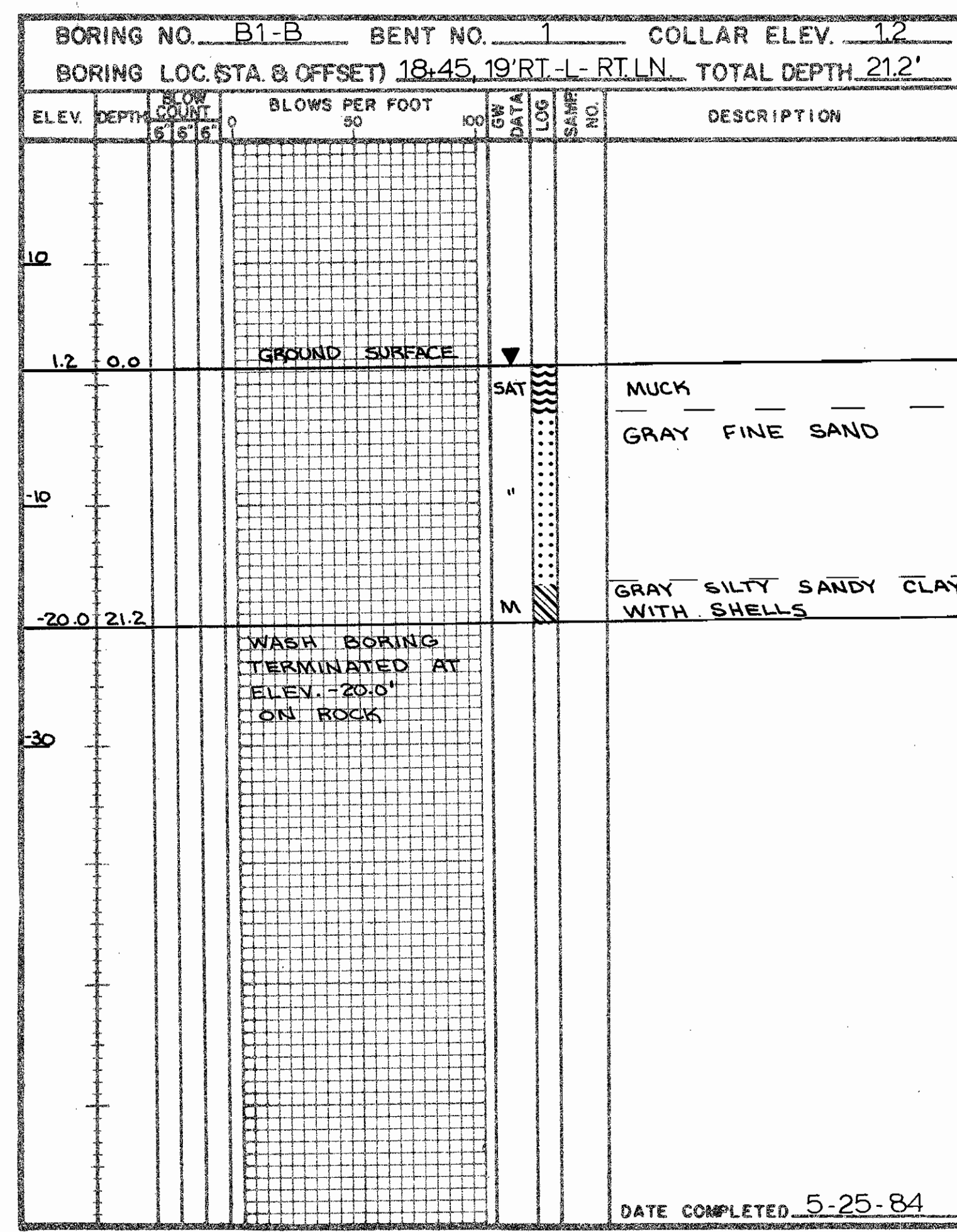
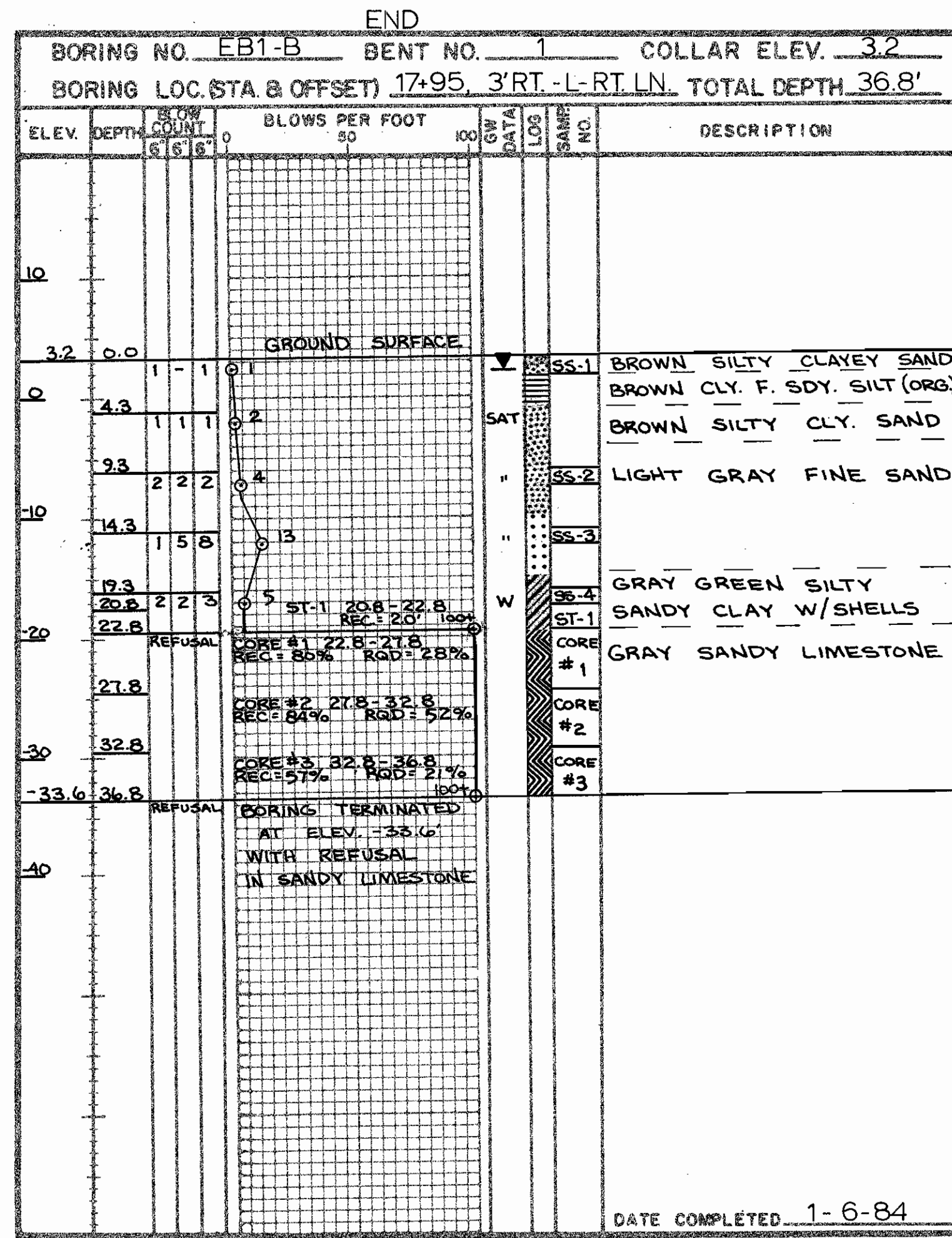
FORM-GEO-01 REVISED 4-77

PROJECT:



SOIL CLASSIFICATION AND GRADATION

| SAMPLE | LOCATION | DEPTH | AASHTO CLASSIFICATION | N | % PASSING #200 SIEVE | COARSE SAND | FINE SAND | SILT | CLAY | LL | PL | RI | W-% |
|--------|----------|-----------|-----------------------|----|----------------------|-------------|-----------|------|------|----|----|-----|-----|
| SS-1 | EB1-B | 0.0-1.5 | A-2.4(O) | 1 | 23 | 23 | 60 | 7 | 10 | 24 | NP | | |
| SS-2 | " | 9.3-10.8 | A-2.4(O) | 4 | 12 | 5 | 87 | 3 | 5 | 24 | NP | | |
| SS-3 | " | 14.3-15.8 | A-3(O) | 13 | 8 | 4 | 91 | 2 | 3 | 24 | NP | | |
| SS-4 | " | 19.3-20.8 | A-6(O) | 5 | 44 | 22 | 39 | 19 | 20 | 32 | 17 | 234 | |
| SS-1 | B1-A | 3.9-5.4 | A-2.4(O) | 7 | 21 | 8 | 77 | 7 | 8 | 19 | NP | | |
| SS-2 | " | 8.9-10.4 | A-3(O) | 12 | 9 | 24 | 70 | 3 | 3 | 18 | NP | | |
| SS-3 | " | 13.9-15.4 | A-3(O) | 7 | 8 | 35 | 59 | 3 | 3 | 17 | NP | | |
| SS-4 | " | 18.9-20.4 | A-6(O) | 6 | 51 | 21 | 32 | 19 | 28 | 36 | 21 | | |
| SS-1 | B2-A | 13.9-15.4 | A-2.4(O) | 2 | 19 | 4 | 86 | 8 | 2 | 20 | NP | | |
| SS-2 | " | 18.9-20.4 | A-3(O) | 8 | 7 | 27 | 58 | 2 | 3 | 18 | NP | | |



SOIL PROPERTIES AND TEST RESULTS

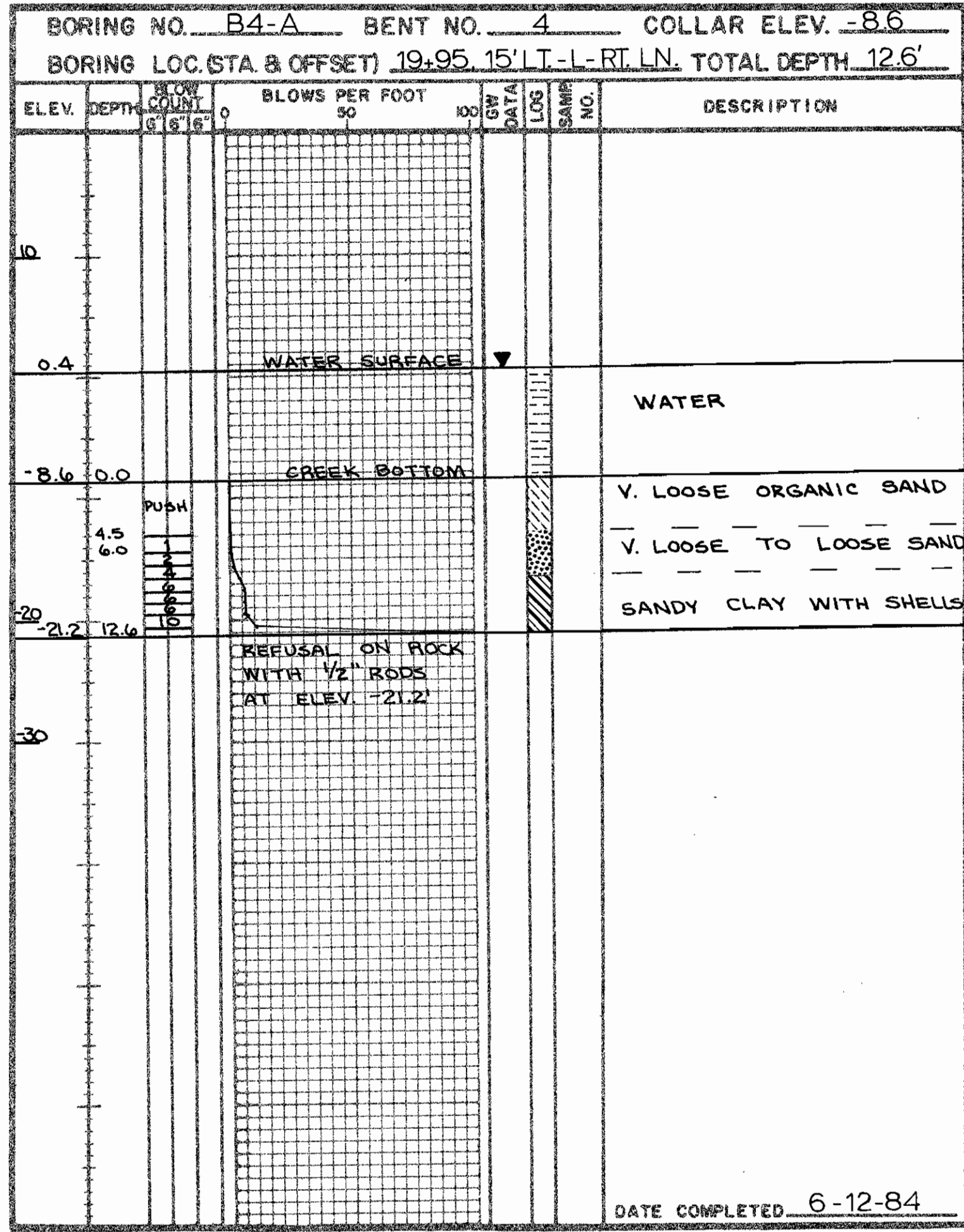
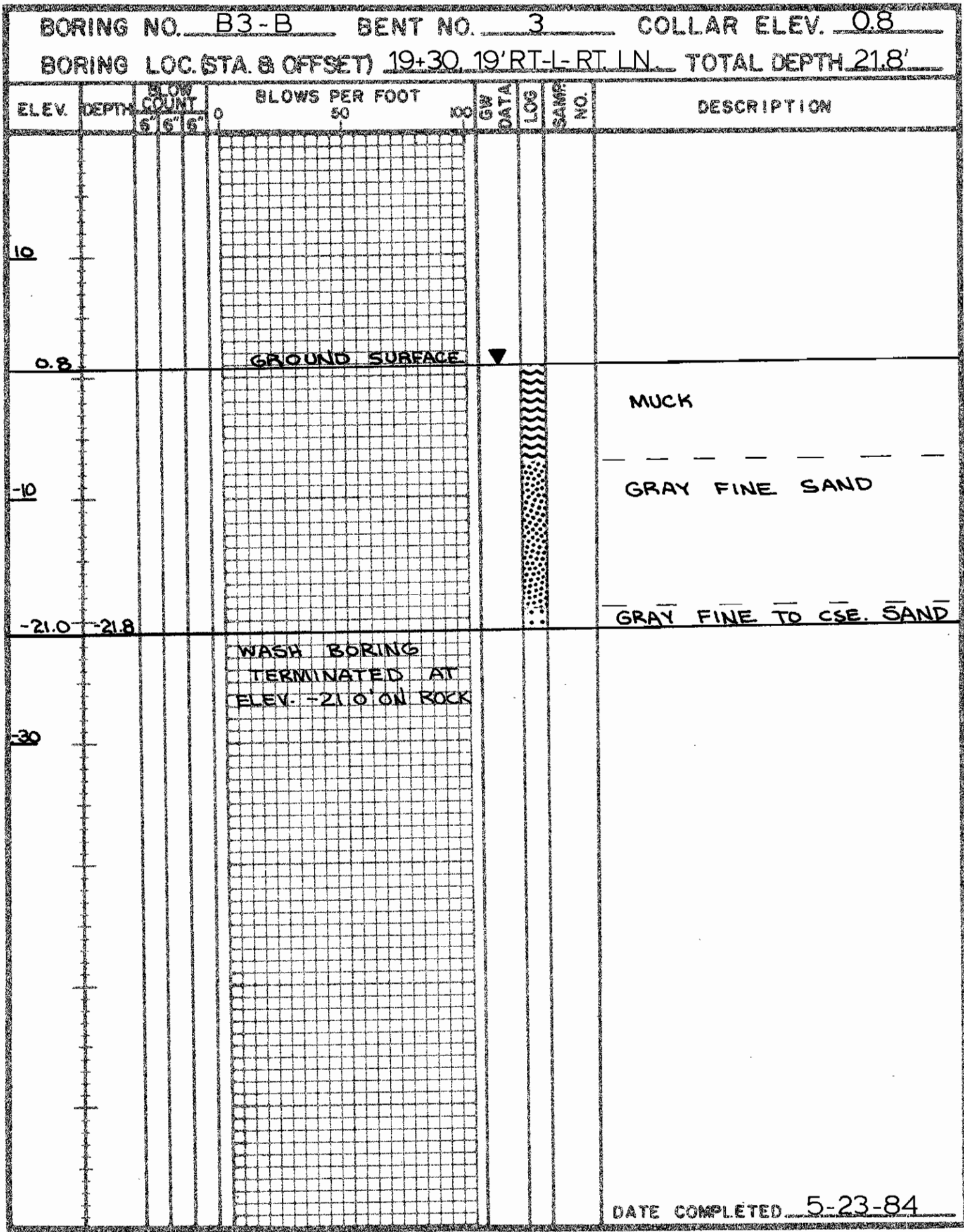
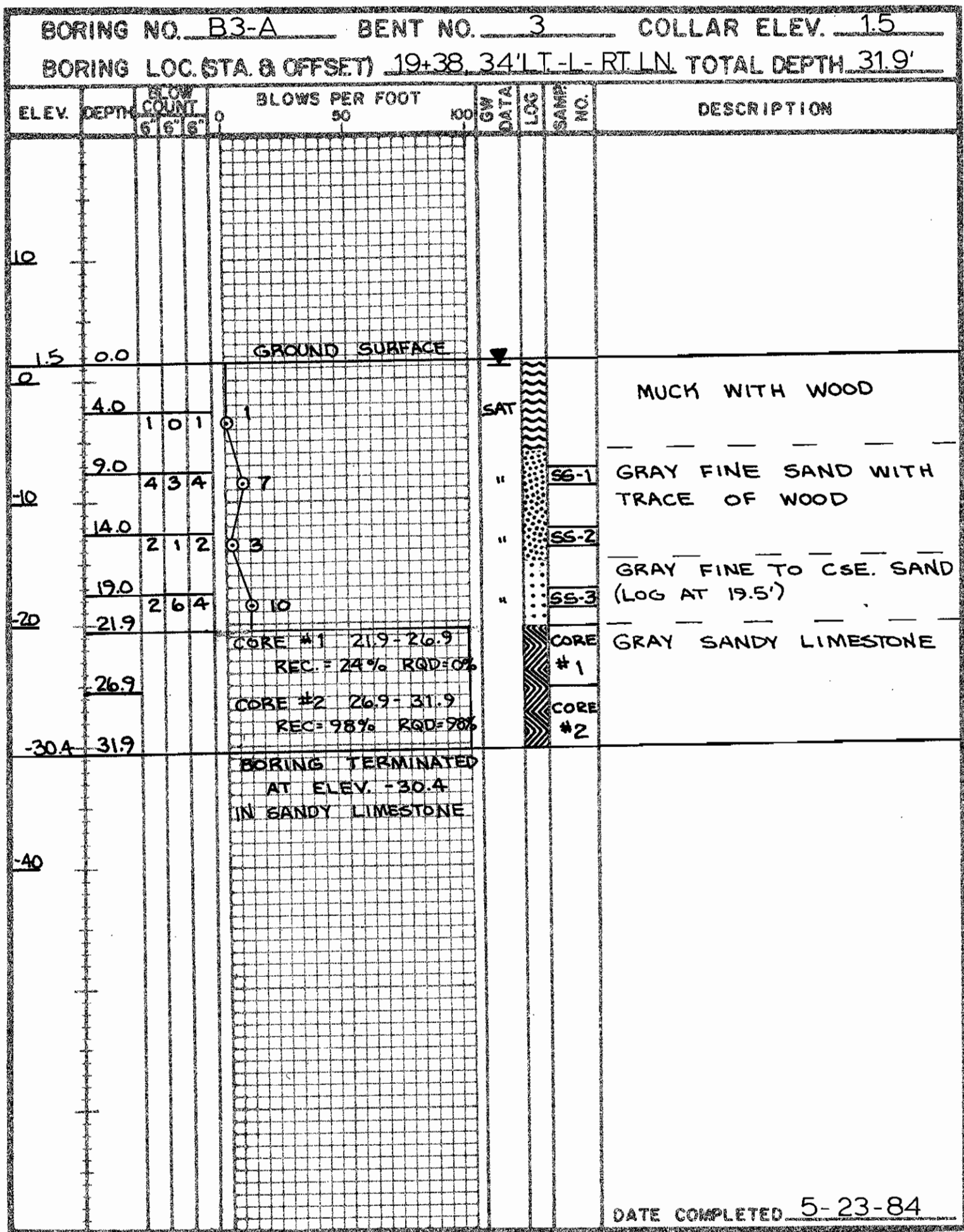
| SAMPLE | LOCATION | DEPTH | AASHTO CLASS. | LL | PI | 7d PCF | w% | s |
|--------|----------|-----------|---------------|----|----|--------|----|---|
| ST-1 | EB1-B | 20.8-22.8 | | | | | | |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL UNIT

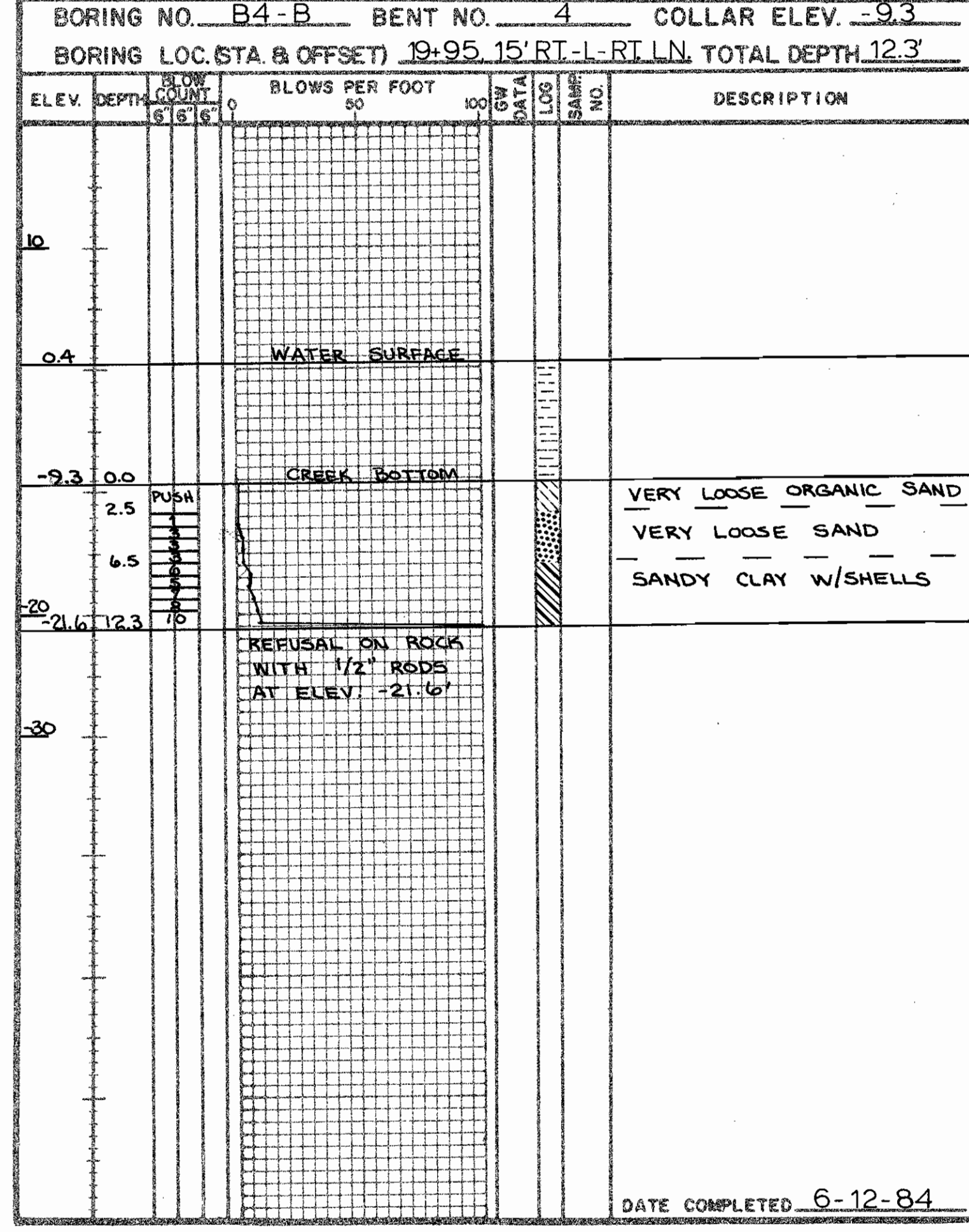
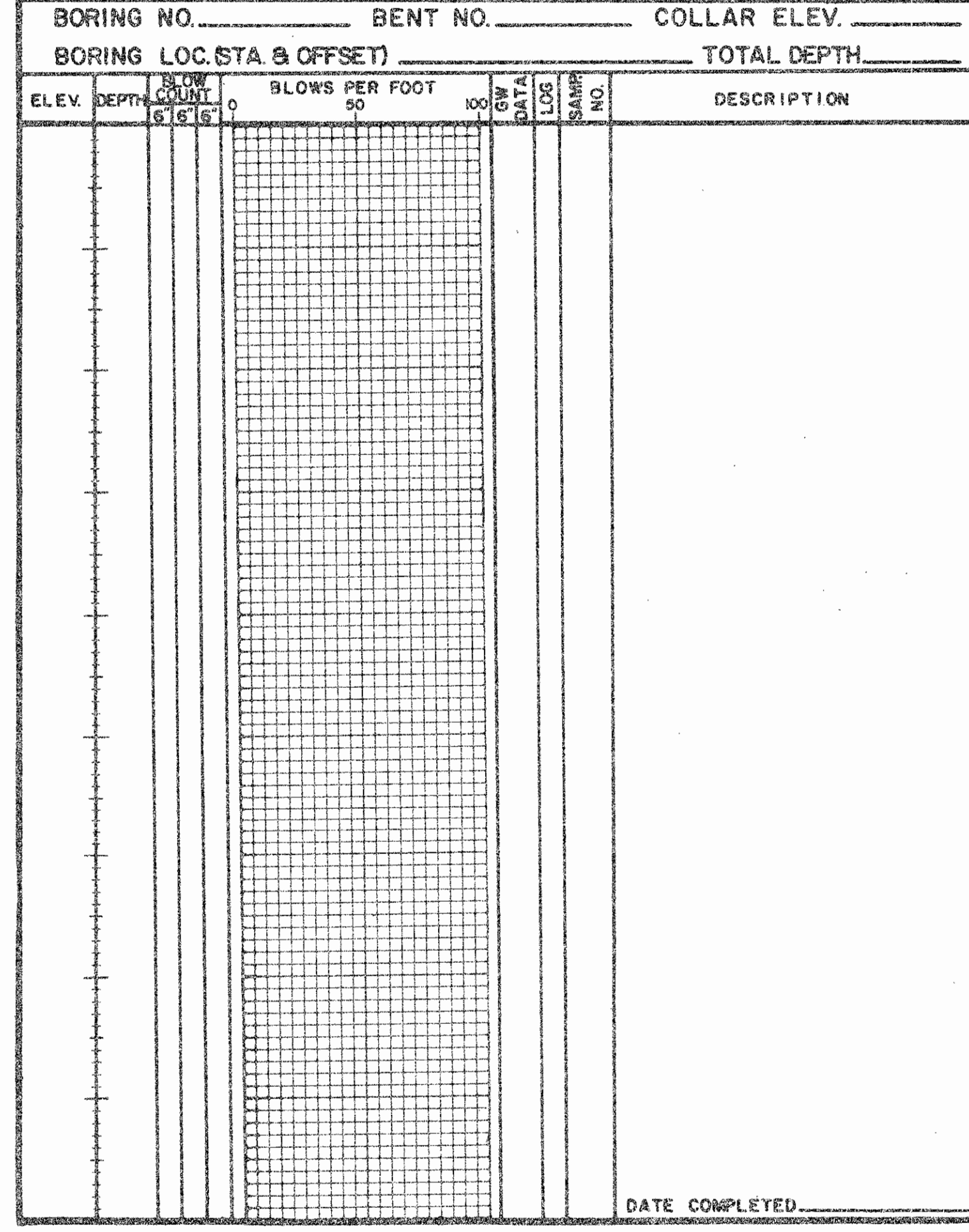
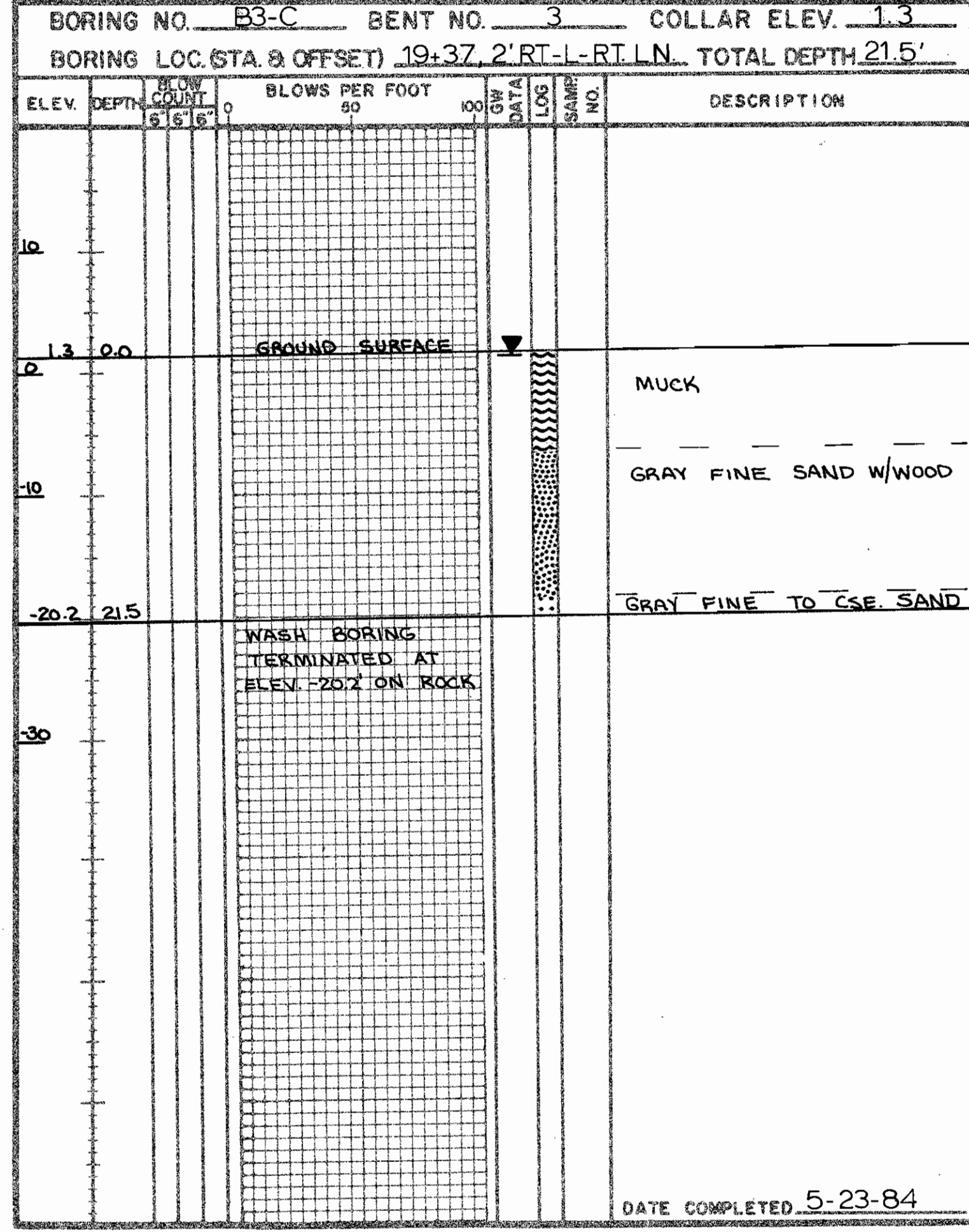
STATE PROJECT NO. 8.1184801 F.A. NO. F-38-1(35)
 COUNTY BEAUFORT - PITT ROUTE US 264
 BRIDGE ON US 264, -L-
 OVER TRANTERS CREEK

PROJECT GEOLOGIST E. A. WITORT DRAWN BY M. D. HARRELL
 CHECKED BY E. A. WITORT SUBMITTED BY G. L. BUNCH
 DATE SUBMITTED JULY 1984

FORM 600-02 REVISED 4-77



| SAMPLE | LOCATION | DEPTH | AASHTO CLASSIFICATION | N | % PASSING #200 SIEVE | COARSE SAND | FINE SAND | SILT | CLAY | LL | PI |
|--------|----------|-----------|-----------------------|----|----------------------|-------------|-----------|------|------|----|----|
| SS-1 | B3-A | 9.0-10.5 | A-2-4(O) | 7 | 18 | 1 | 88 | 6 | 5 | 22 | NP |
| SS-2 | " | 14.0-15.5 | A-2-4(O) | 3 | 33 | 1 | 79 | 14 | 6 | 23 | NP |
| SS-3 | " | 19.0-20.5 | A-3(O) | 10 | 6 | 25 | 72 | 2 | 1 | 22 | NP |



| SAMPLE | LOCATION | DEPTH | AASHTO CLASS. | LL | PI | 7d PCF | w% | e |
|--------|----------|-------|---------------|----|----|--------|----|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

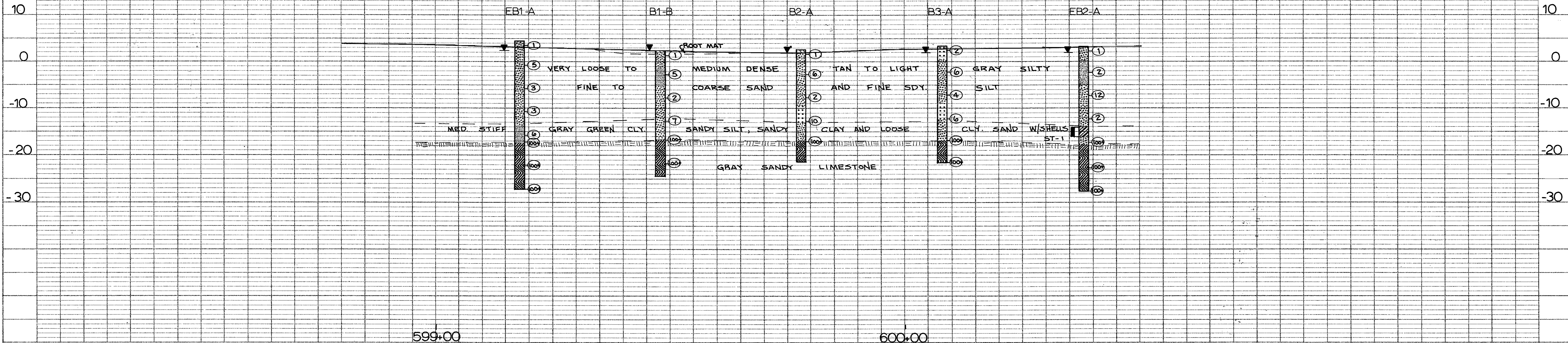
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COUNTY PITT-BEAUFORT ROUTE US 264
BRIDGE ON US 264 -L-
OVER TRANTERS CREEK

PROJECT GEOLOGIST E.A. WITORT DRAWN BY M. D. HARRELL
CHECKED BY E.A. WITORT SUBMITTED BY G.L. BUNCH
DATE SUBMITTED JULY 1984

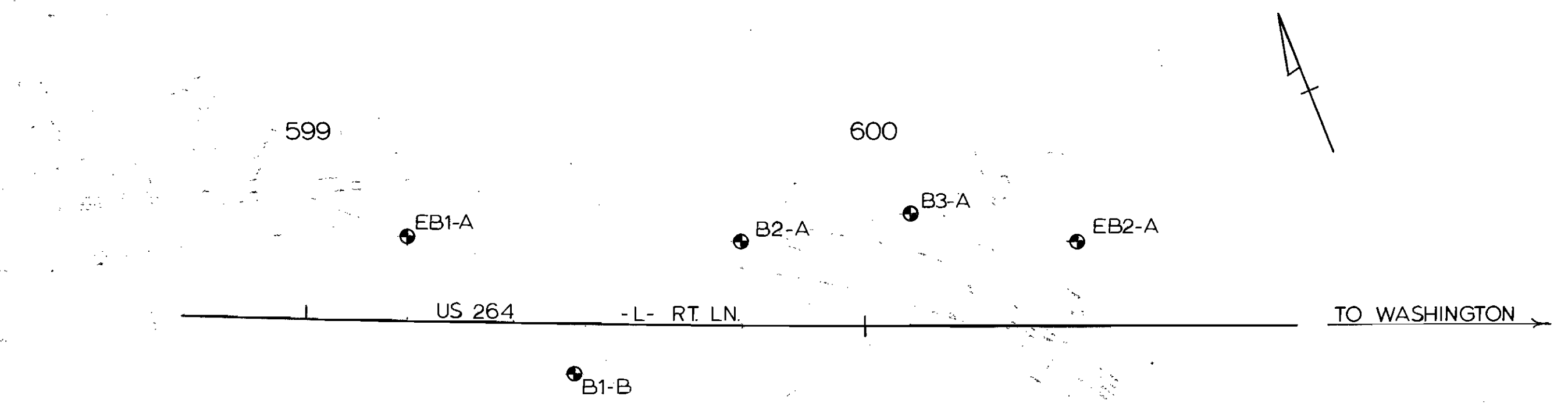
FORM GEO-02 REVISED 4-77

PROJECT: Raw B 81184801

PROFILE THROUGH BORINGS



TEST SITE PLAN



SOIL LEGEND AND CLASSIFICATION

| GENERAL CLASS. | GRAVULAR MATERIALS (<= 35% PASSING #200) | | | | | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | | ORGANIC MATERIALS | | | |
|--------------------------------|--|-----------|---------------------------------|-------------|--------------|---|----------------------|--|----------|----------|---------------|--------------------|---|----------------------|------------|
| | A-1 | A-3 | A-2-4 | A-2-5 | A-2-6 | A-2-7 | A-4 | A-5 | A-6 | A-7 | A-1, A-2, A-3 | A-4, A-5, A-6, A-7 | U | OM | PT |
| GROUP CLASS. | A-1-0 | A-1-1 | A-2-4 | A-2-5 | A-2-6 | A-2-7 | A-4 | A-5 | A-6 | A-7 | A-1, A-2, A-3 | A-4, A-5, A-6, A-7 | U | OM | PT |
| SYMBOL | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] | [Symbol] |
| % PASSING | 50 #10 | 30 #10 | 50 #10 | 51 #10 | 35 #10 | 35 #10 | 35 #10 | 35 #10 | 36 #10 | 36 #10 | 36 #10 | 36 #10 | GRAVULAR SOILS | SILT-CLAY SOILS | WUCK, PEAT |
| (PASSING #40) | LL | PI | LL | PI | LL | PI | LL | PI | LL | PI | LL | PI | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER | HIGHLY ORGANIC SOILS | |
| USUAL TYPES OF MAJOR MATERIALS | STONE FRAGS. GRAVEL & SAND | FINE SAND | SILTY OR CLAYEY GRAVEL AND SAND | SILTY SOILS | CLAYEY SOILS | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER | HIGHLY ORGANIC SOILS | | | | | | | | |

TEXTURE OR GRAIN SIZE

| BOULDER | COBBLE | GRAVEL | COARSE SAND | MED. SAND | FINE SAND | SILT | CLAY |
|---------------|--------|--------|-------------|-----------|-----------|------|------|
| GRAIN SIZE MM | 305 | 75 | 2 | 0.6 | 0.25 | 0.2 | 0.05 |
| GRAIN SIZE IN | 12" | 3" | | | | | |

SOIL MOISTURE - CORRELATION OF TERMS

| SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION |
|--|----------------------------|---|
| LL | LIQUID LIMIT | -SATURATED- USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE |
| PL | PLASTIC LIMIT | -WET- (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE |
| OM | OPTIMUM MOISTURE | -MOIST- (M) SOLID; AT OR NEAR OPTIMUM MOISTURE |
| SL | SHRINKAGE LIMIT | -DRY- (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE |

CONSISTENCY OR DENSENESS

| PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (BPF) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) |
|------------------------------|--|--|--|
| GENERALLY GRANULAR MATERIAL | VERY LOOSE, LOOSE, MEDIUM DENSE, DENSE, VERY DENSE | < 4, 4 TO 10, 10 TO 30, 30 TO 50, > 50 | N/A |
| GENERALLY SILT-CLAY MATERIAL | VERY SOFT, SOFT, MEDIUM STIFF, STIFF, VERY STIFF, HARD | < 2, 2 TO 4, 4 TO 8, 8 TO 15, 15 TO 30, > 30 | < .25, .25 TO .5, .5 TO 1, 1 TO 2, 2 TO 4, > 4 |

MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|----------|--|----------|------------------------------|
| [Symbol] | ROADWAY EMBANKMENT WITH SOIL DESCRIPTION | [Symbol] | TEST BORING |
| [Symbol] | ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS | [Symbol] | AUGER BORING |
| [Symbol] | INFERRED SOIL BOUNDARIES | [Symbol] | CORE BORING |
| [Symbol] | STRIKE AND DIP OF BEDS | [Symbol] | PIEZOMETER INSTALLATION |
| [Symbol] | APPARENT DIP (NORMAL TO ...) | [Symbol] | SLOPE INDICATOR INSTALLATION |
| [Symbol] | | [Symbol] | SPT N-COUNT |
| [Symbol] | | [Symbol] | SAMPLE DESIGNATIONS |
| [Symbol] | | [Symbol] | BULK SAMPLE |
| [Symbol] | | [Symbol] | SPLIT SPOON SAMPLE |
| [Symbol] | | [Symbol] | "SHELBY TUBE SAMPLE |
| [Symbol] | | [Symbol] | WASH SAMPLE |

GROUND WATER

| | |
|----------|---|
| [Symbol] | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING (I.A.D.) SOON AFTER DRILLING (HRS.) |
| [Symbol] | STATIC WATER LEVEL (AFTER 24 HRS.) |
| [Symbol] | PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA |
| [Symbol] | SPRING OR SEEPAGE |

ABBREVIATIONS

| | | | |
|--------|--------------------------|-----------|---------------------------|
| ALLOY. | ALLUVIUM | REF. RES. | REFER TO RESIDUAL |
| BLDR. | AUGER REFUSAL | SAT. | SATURATED |
| BPF | BOULDER | SD. | SAND |
| BLPS | BLOWS PER FOOT | SDY. | SANDY |
| C. | COHESION | SED(S) | SEDIMENT(S) |
| CALC. | CALCAREOUS | SL. | SILT |
| CL. | CLAY | SLI. | SLIGHTLY |
| CLY. | CLAYEY | | |
| COB. | COBBLE | | |
| CSE | COARSE | | |
| DPT | DYNAMIC PENETRATION TEST | SPT | STANDARD PENETRATION TEST |
| F. | VOID RATIO | TS. | TOPSOIL |
| F.F. | FINE | VST. | VERY SHEAR TEST |
| F.F.S. | FOSFILIFEROUS | W. | WATER |
| F.F.S. | FRAC. | Y. | YIELD |
| F.F.S. | FRAGMENT(S) | Z. | ZONE |
| G. | GRAVEL | | |
| G.S. | SPECIFIC GRAVITY | | |
| G.W. | GROUND WATER | V. | VERY |
| HIC. | HICACEOUS | EST. | ESTIMATED |
| HOT. | HOTTLED | | |
| H. | HIGH | | |
| NS. | NO SAMPLE TAKEN | | |
| ORG. | ORGANIC | | |

ROCK DESCRIPTION

IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF "WEATHERED ROCK". FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:

| TERM | SYMBOLS | DESCRIPTION |
|----------------------|----------|--|
| HARD ROCK (HR) | [Symbol] | MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING SAMPLE. |
| WEATHERED ROCK (WHR) | [Symbol] | HARD WEATHERED ROCK: MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL ¹ . SOFT WEATHERED ROCK: MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BPF BUT < SPT REFUSAL. |

¹ SPT REFUSAL (ASTM) = 1 INCH OF PENETRATION PER 50 BLOWS.
² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:
 CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK QUALITY DESIGNATION (ROD) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.
 ROCK CORE NOMINAL SIZES: AX CORE (1 3/16"); BX CORE (1 5/8"); NX CORE (2 1/8"); NXWL CORE (1 5/16")

B.M. RR SPIKE IN BASE OF 18" WATER OAK 45' RT STA 10+76 -L-
 MISC: ELEV 5.51

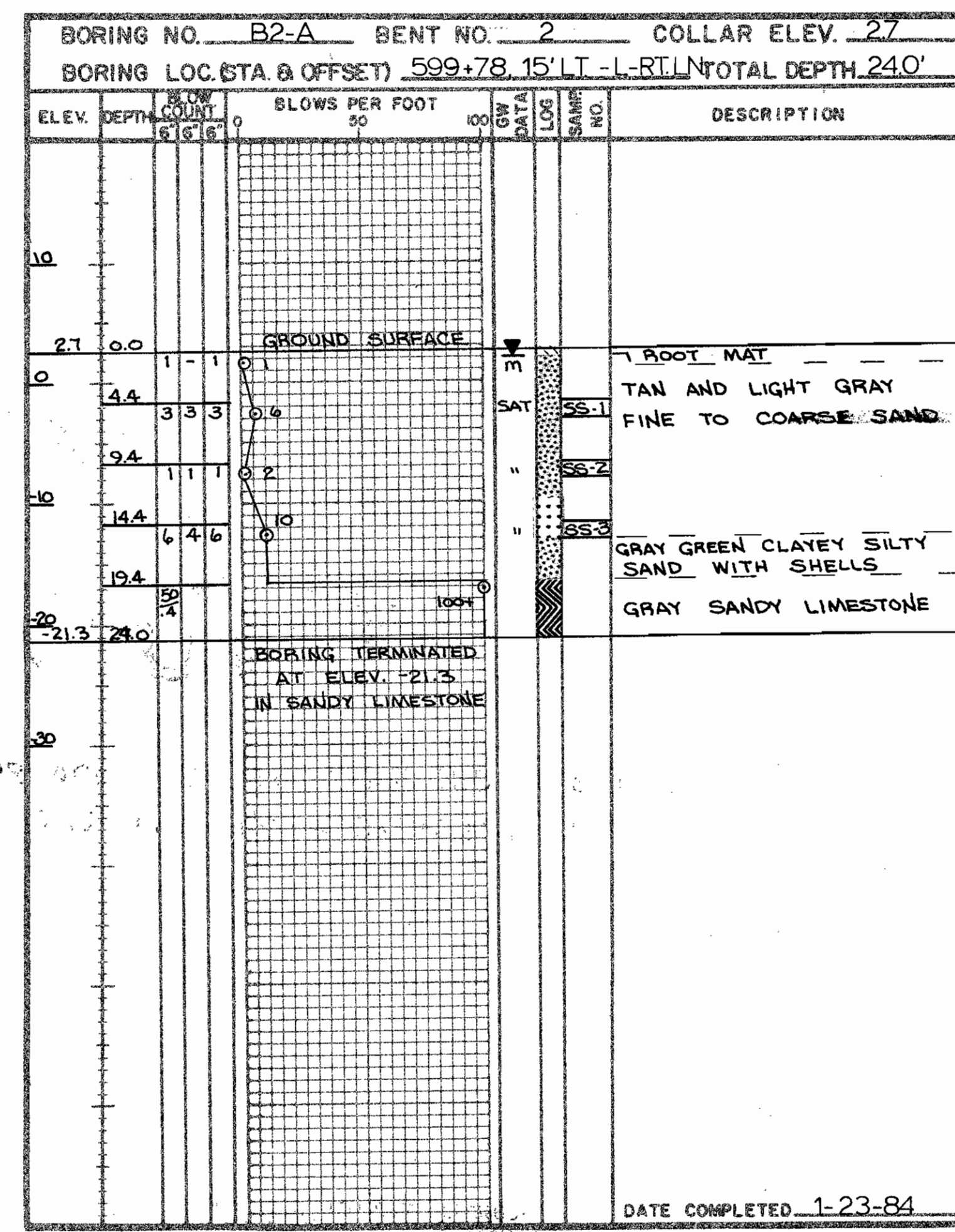
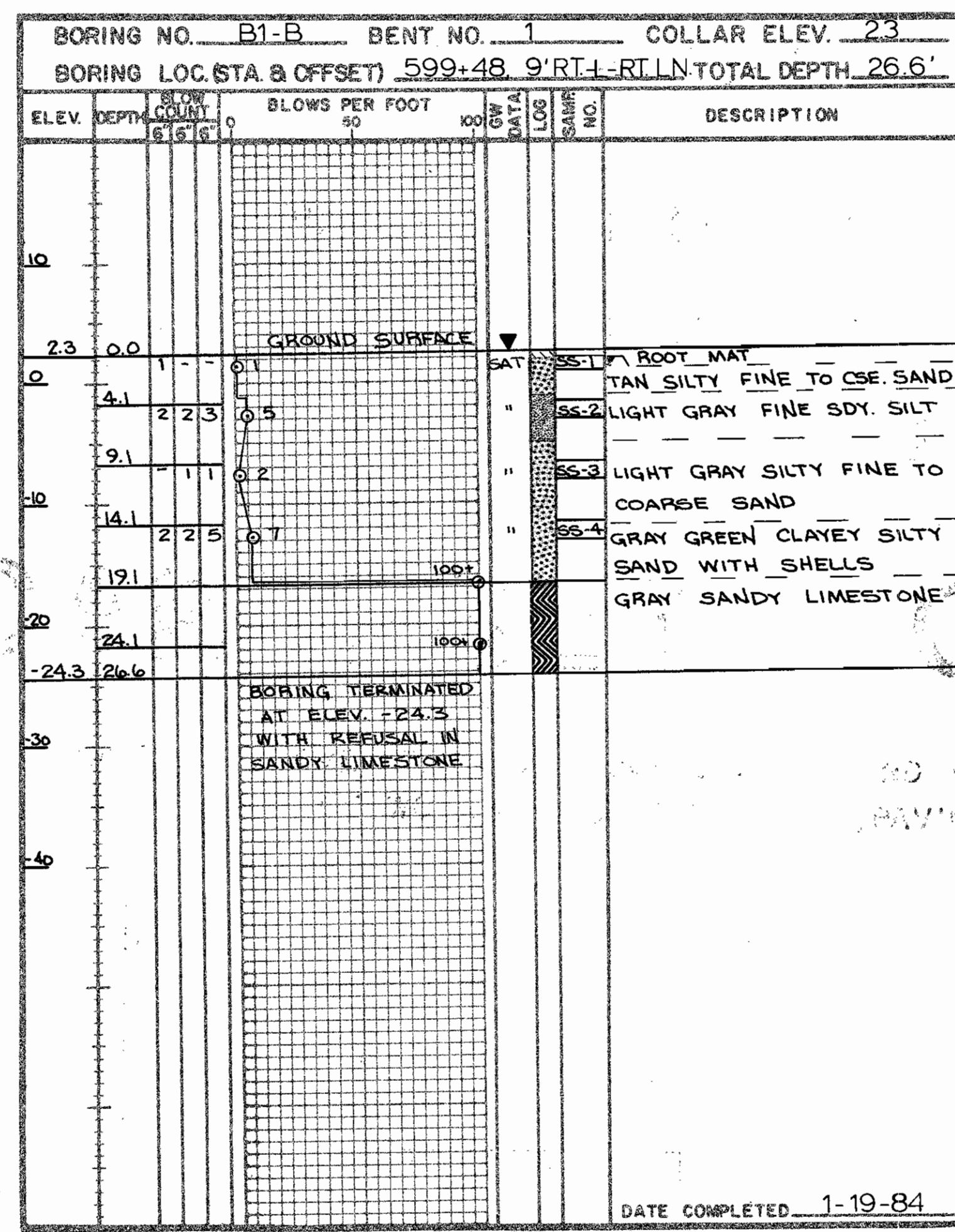
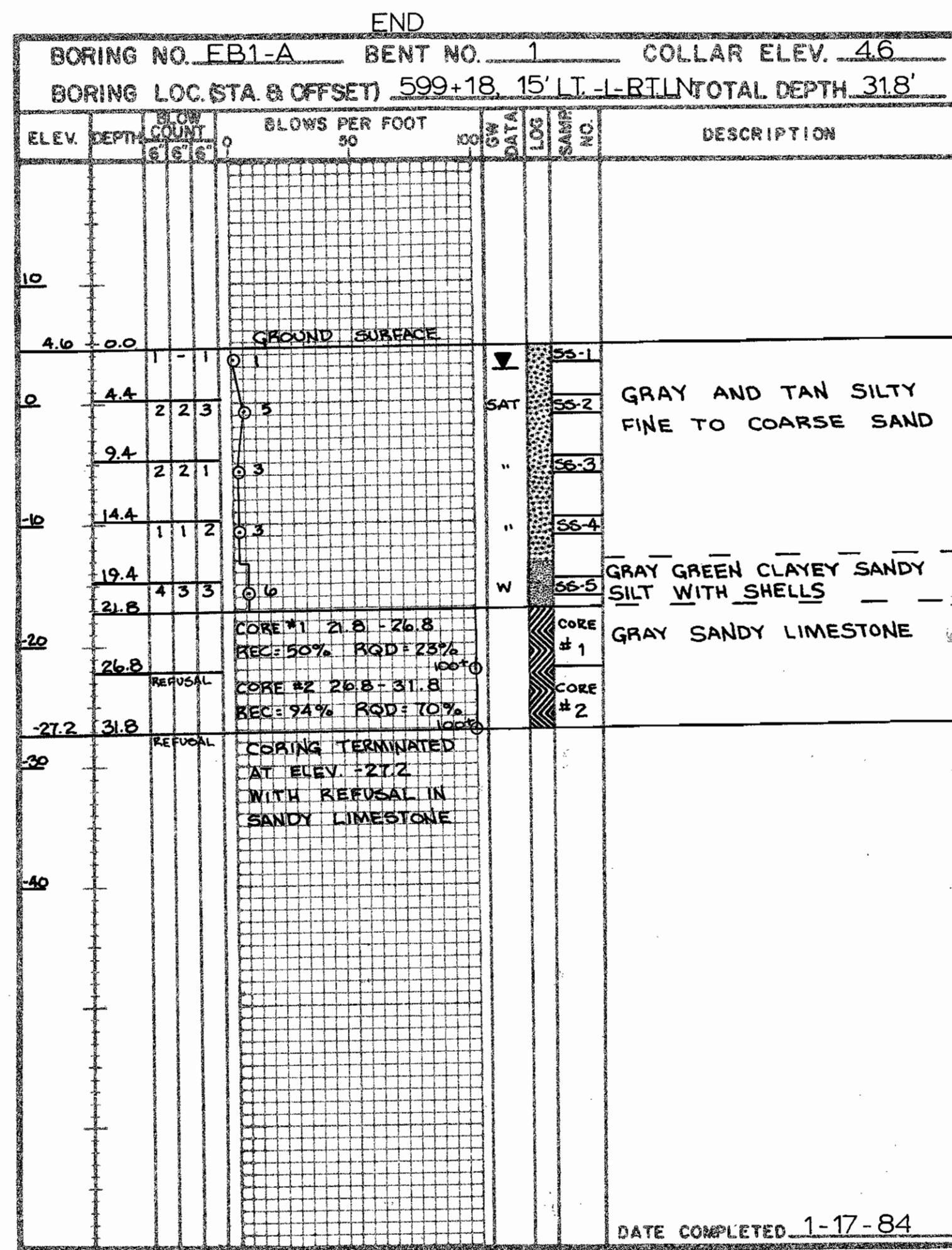
NOTE: THE SUBSURFACE INFORMATION SUPPLIED IN THIS REPORT IS BASED ON A PRELIMINARY BRIDGE REPORT. A REVIEW OF THE SUBSURFACE CONDITIONS IS NECESSARY IF SIGNIFICANT CHANGES ARE MADE IN THE DESIGN AND/OR LOCATION OF THE PROPOSED STRUCTURE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

STATE PROJECT NO. 81184801 R-216B F.A. NO. F-38-1(35)
 COUNTY BEAUFORT - PITT ROUTE US 264
 BRIDGE ON US 264 -L- RT LN.
 OVER TRANTERS CREEK OVERFLOW

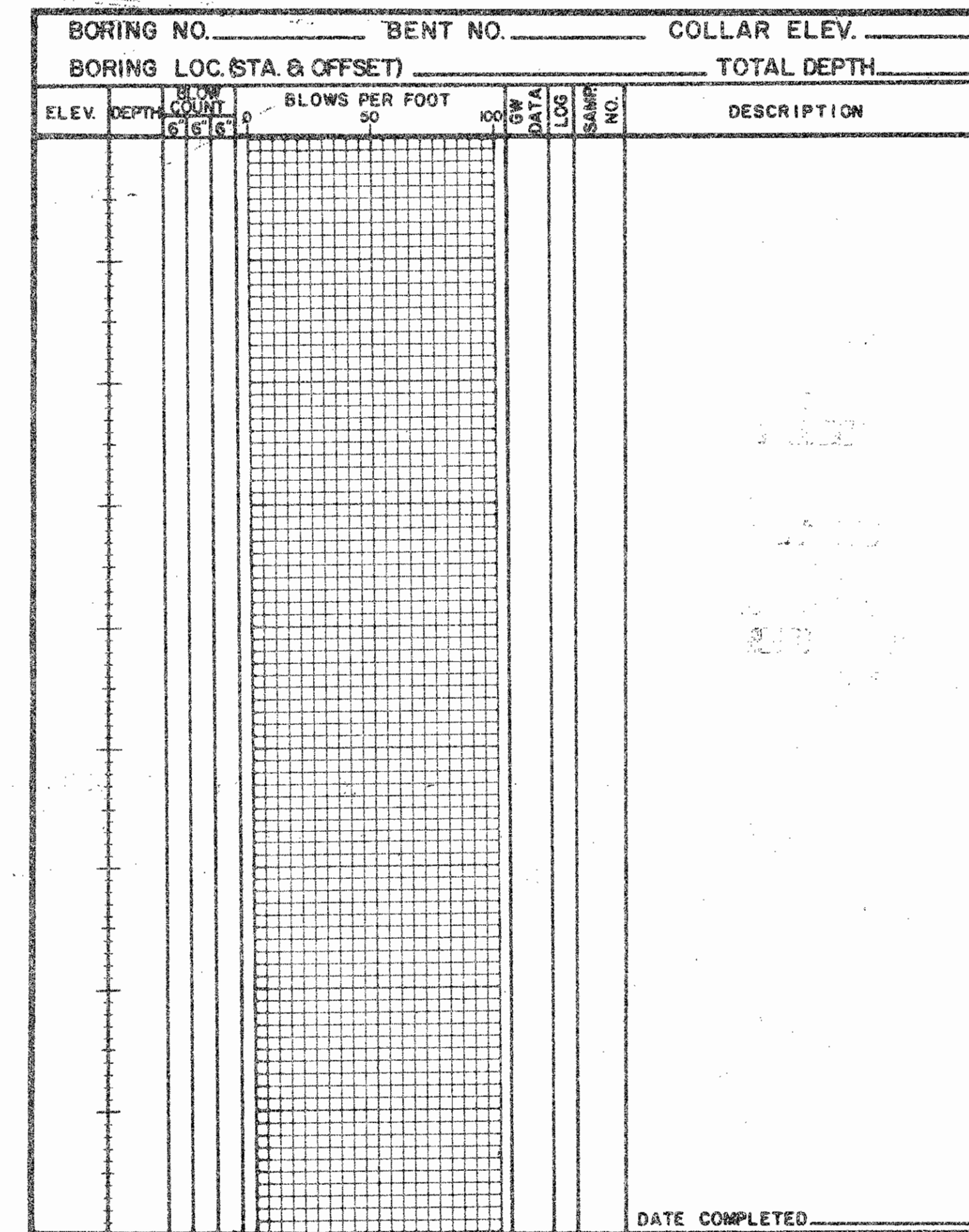
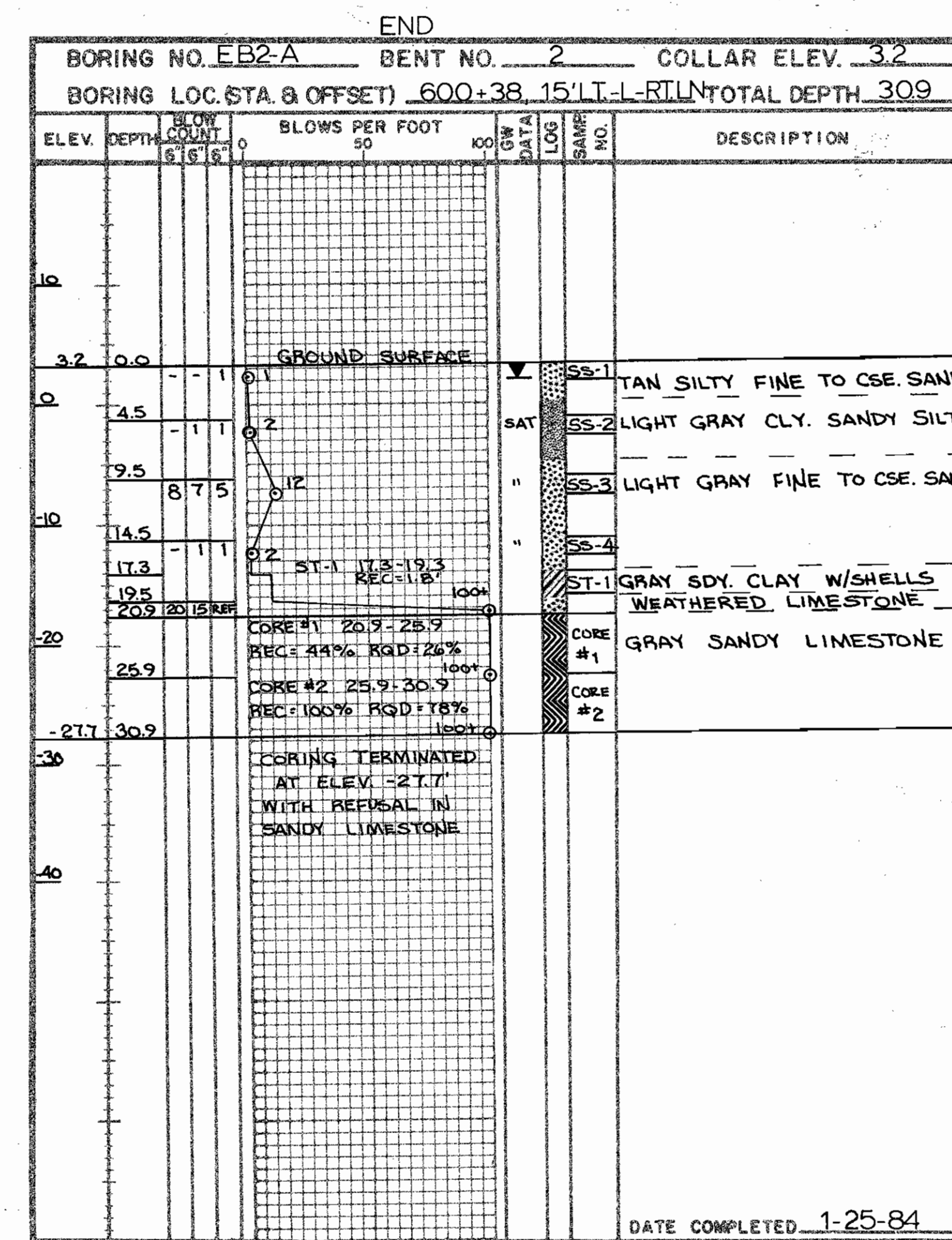
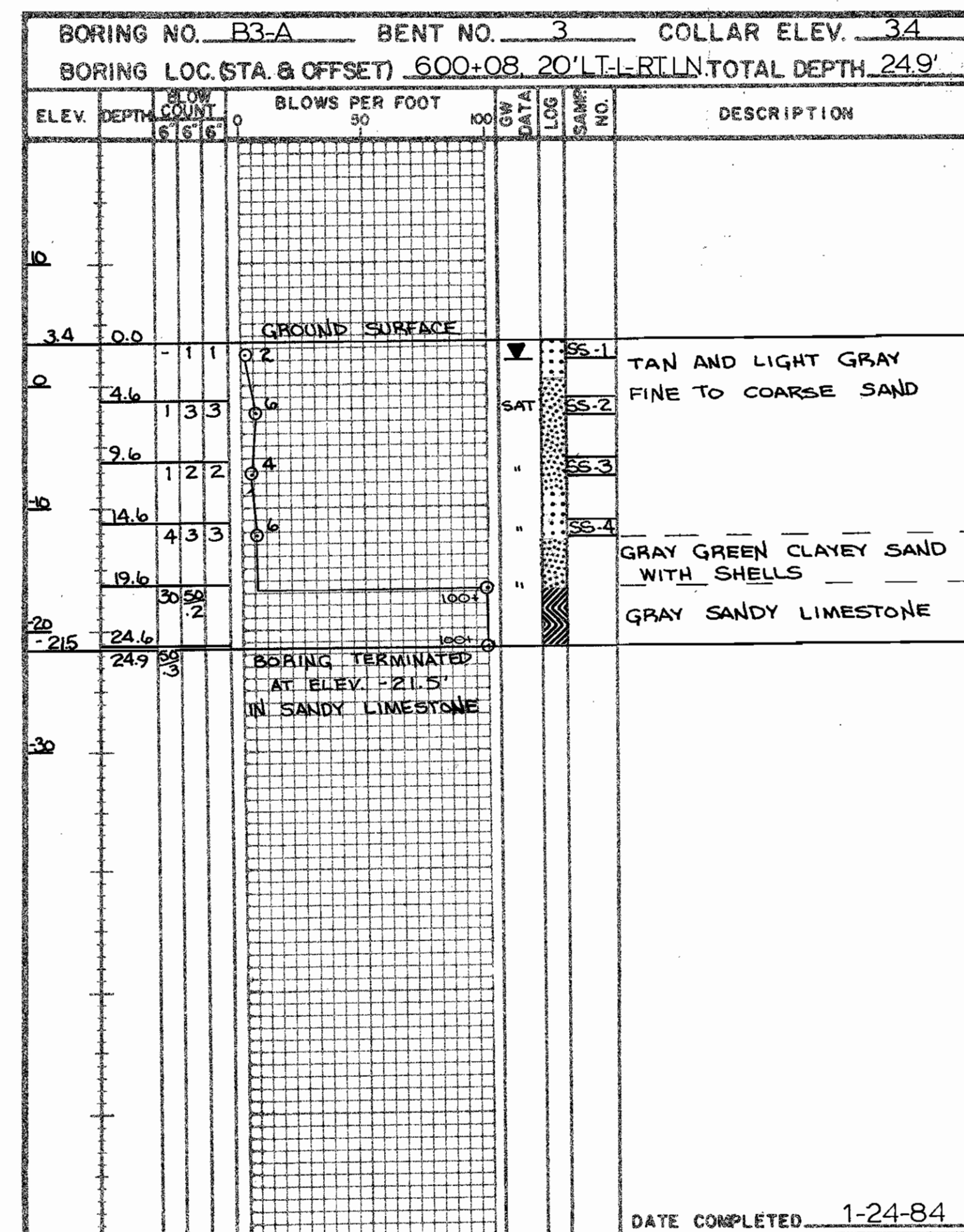
PROJECT GEOLOGIST F.A. WITORT DRAWN BY M.D. HARRELL
 CHECKED BY E.A. WITORT SUBMITTED BY G.L. BUNCH
 PERSONNEL RLE DATE SUBMITTED MARCH 1984
 SSB

FORM GEO-01 REVISED 4-77



SOIL CLASSIFICATION AND GRADATION

| SAMPLE | LOCATION | DEPTH | AASHTO CLASSIFICATION | N | % PASSING #200 SIEVE | COARSE SAND | FINE SAND | SILT | CLAY | LL | PI | W % |
|--------|----------|-----------|-----------------------|----|----------------------|-------------|-----------|------|------|----|------|-----|
| SS-1 | EB1-A | 0.0-1.5 | A-2-4(0) | 25 | 17 | 64 | 13 | 6 | 25 | NP | | |
| SS-2 | " | 4.4-5.9 | A-2-4(0) | 20 | 28 | 56 | 8 | 8 | 18 | NP | | |
| SS-3 | " | 9.4-10.9 | A-2-4(0) | 11 | 25 | 67 | 6 | 2 | 18 | NP | | |
| SS-4 | " | 14.4-15.9 | A-2-4(0) | 22 | 16 | 67 | 11 | 6 | 21 | NP | | |
| SS-5 | " | 19.4-20.9 | A-4(0) | 36 | 24 | 42 | 18 | 16 | 27 | 9 | 24.0 | |
| SS-1 | B1-B | 0.5-1.5 | A-2-4(0) | 24 | 16 | 65 | 14 | 5 | 20 | NP | | |
| SS-2 | " | 4.1-5.6 | A-2-4(0) | 28 | 10 | 69 | 12 | 9 | 20 | NP | | |
| SS-3 | " | 9.1-10.6 | A-2-4(0) | 23 | 8 | 75 | 10 | 7 | 20 | NP | | |
| SS-4 | " | 14.6-15.6 | A-2-4(0) | 25 | 34 | 40 | 14 | 12 | 25 | 4 | | |
| SS-1 | B2-A | 4.4-5.9 | A-2-4(0) | 30 | 11 | 67 | 11 | 11 | 19 | NP | | |
| SS-2 | " | 9.4-10.9 | A-2-4(0) | 31 | 7 | 65 | 18 | 10 | 20 | NP | | |
| SS-3 | " | 14.4-15.9 | A-3(0) | 5 | 70 | 27 | 2 | 1 | 17 | NP | | |
| SS-1 | B3-A | 0.0-1.5 | A-3(0) | 6 | 30 | 66 | 2 | 2 | 22 | NP | | |
| SS-2 | " | 4.6-6.1 | A-2-4(0) | 21 | 15 | 70 | 5 | 10 | 20 | NP | | |
| SS-3 | " | 9.6-11.1 | A-2-4(0) | 22 | 11 | 73 | 9 | 7 | 21 | NP | | |
| SS-4 | " | 14.6-16.1 | A-3(0) | 2 | 90 | 8 | 1 | 1 | 18 | NP | | |
| SS-1 | EB2-A | 0.0-1.5 | A-2-4(0) | 17 | 24 | 62 | 12 | 2 | 24 | NP | | |
| SS-2 | " | 4.5-6.0 | A-4(1) | 41 | 9 | 58 | 17 | 16 | 21 | NP | | |
| SS-3 | " | 9.5-11.0 | A-2-4(0) | 15 | 25 | 64 | 6 | 5 | 16 | NP | | |
| SS-4 | " | 14.5-16.0 | A-2-4(0) | 18 | 18 | 67 | 9 | 6 | 19 | NP | | |



SOIL PROPERTIES AND TEST RESULTS

| SAMPLE | LOCATION | DEPTH | AASHTO CLASS. | LL | PI | % PCF | w % | g |
|--------|----------|-----------|---------------|----|----|-------|-----|---|
| ST-1 | EB2-A | 17.3-19.3 | | | | | | |

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